

BHUBANANANDA ODISHA SCHOOL OF ENGINEERING, CUTTACK

DEPARTMENT OF CIVIL ENGINEERING



LESSON PLAN

SUBJECT: HIGHWAY ENGG. (TH 4)

FACULTY: SHUBHASHREE MAHARANA

ACCADEMIC SESSION: 2023-24

SEMESTER: 4TH

SEC: C

Sd/-
H O D (Civil Engg.)

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Discipline: Civil Engineering	Semester: 4th(c)		Name of the teaching faculty: Shubhashree Maharana
Subject: Highway Engg.	No of days per week class allotted: 05 periods/week (Mon- 2P, Tue, Wed, Thu and sat-1 period each)		Semester : From date: 16-01-2024 to date : 26-04-2024 No of weeks: 15 weeks
Week	Class Day	No of period available	Theory/Practical topic
1 st	16/01/24	1	1.1 Importance of Highway transportation
	17/01/24	1	Importance organizations like Indian roads congress, Ministry of Surface Transport, Central Road Research Institute.
	18/01/24	1	1.2 Functions of Indian Roads Congress
2 nd	22/01/24	2	1.3 IRC classification of roads
	24/01/24	1	1.4 Organisation of state highway department
	25/01/24	1	2.1 Glossary of terms used in geometric and their importance
3 rd	29/01/24	2	Right of way, formation width, road margin, road shoulder Carriage way, side slopes,
	30/01/24	1	kerbs, formation level
	31/01/24	1	Camber and gradient 2.2 Design and average running speed
	01/02/24	1	Stopping sight distance
4 th	05/02/24	2	Stopping sight distance
	06/02/24	1	Passing sight distance
	07/02/24	1	Numericals on Stopping sight distance
	08/02/24	1	Numericals on Passing sight distance
5 th	12/02/24	2	Transition curves Super-elevation
	13/02/24	1	Methods of providing super – elevation

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	15/02/24	1	Numericals on transition curves
6 th	19/02/24	2	Numericals on superelevation
	20/02/24	1	Discuss previous year questions 3.1 Difference types of road materials in use Soil, aggregates, and binders
	21/02/24	1	3.2 Function of soil as highway Subgrade
	22/02/24	1	California Bearing Ratio
7 th	26/02/24	2	Methods of finding CBR valued in the laboratory and their significance
	27/02/24	1	methods of finding CBR valued at site and their significance
	28/02/24	1	CLASS TEST 1
	29/02/24	1	3.4 Testing aggregates: Abrasion test, impact test, Crushing strength test, water absorption test & soundness test
8 th	04/03/24	2	Discuss previous year questions 4.1 Road Pavement: Flexible and rigid pavement, their merits and demerits
	06/03/24	1	Typical cross-sections, functions of various components
	07/03/24	1	Flexible pavements: 4.2 Sub-grade preparation: Setting out alignment of road, setting out bench marks, control pegs for embankment and cutting, borrow pits
9 th	11/03/24	2	Making profile of embankment, construction of embankment, compaction, stabilization, preparation of subgrade
			Methods of checking camber, gradient and alignment as per recommendations of IRC, equipment used for subgrade preparation
	12/03/24	1	4.3 Sub base Course: Necessity of sub base, stabilized sub base,
	13/02/24	1	purpose of stabilization Types of stabilization
	14/03/24	1	Mechanical stabilization, Lime stabilization, Cement stabilization, Fly ash

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			stabilization
10 th	18/03/24	2	4.4 Base Course: Preparation of base course, Brick soling, stone soling and metalling, Water Bound Macadam and wet-mix Macadam,
	19/03/24	1	CLASS TEST 2
	20/03/24	1	Bituminous constructions: Different types 4.5 Surfacing: Surface dressing (i) Premix carpet and (ii) Semi dense carpet, Bituminous concrete, Grouting
	21/03/24	1	4.6 Rigid Pavements: Concept of concrete roads as per IRC specifications Discuss previous year questions
11 th	27/03/24	1	5.1 Introduction: Typical cross-sections showing all details of a typical hill road in cut Typical cross-sections showing all details of a typical hill road partly in cutting and partly in filling
	28/03/24	1	5.2 Breast Walls, Retaining walls Different types of bends
12 th	02/04/24	1	INTERNAL ASSESSMET
	03/04/24	1	INTERNAL ASSESSMET
	04/04/24	1	6.1 Necessity of road drainage work, cross drainage works 6.2 Surface and sub-surface drains and storm water drains
13 th	08/04/24	2	Location, spacing and typical details of side drains, side ditches for surface drainage, intercepting drains, pipe drains in hill roads Details of drains in cutting embankment, typical cross sections
	09/04/24	1	7.1 Common types of road failures – their causes and remedies 7.2 Maintenance of bituminous road such as patch work and resurfacing

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	10/04/24	1	7.3 Maintenance of concrete roads – filling cracks, repairing joints, maintenance of shoulders (berm), maintenance of traffic control devices
14 th	15/04/24	2	7.4 Basic concept of traffic study, Traffic safety and traffic control signal Preliminary ideas of the following plant and equipment:
	16/04/24	1	8.1 Hot mixing plant
	18/04/24	1	8.2 Tipper, tractors (wheel and crawler) scraper, bulldozer, dumpers, shovels, graders, roller dragline
15 th	22/04/24	2	8.3 Asphalt mixer and tar boilers
	23/04/24	1	8.4 Road pavers
	24/04/24	1	8.5 Modern construction equipments for roads
	25/04/24	1	Discuss previous year questions